

Attorney Docket 3926.245		Patent Application
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### **Patent Claims**

1. Crankshaft with combined drive gear wheel, wherein both are cast as one piece, wherein crankshaft and gear wheel exhibit differential hardening, thereby characterized, that both are manufactured from tempered ductile iron (ADI), that the hardness of the gear wheel is further increased by local differential thermal treatment during ADI heat treatment and/or by peening, and that the friction wear resistance of the gear teeth is increased by application of carbide containing coatings (CADI).
2. Process for manufacturing a crankshaft with combined drive gear wheel, wherein both are cast as one piece, thereby characterized, that a base alloy suitable for tempered ductile iron (ADI) is employed as casting material and heat treated, wherein the heat treatment is controlled locally differentially such that locally the hardness is further increased, and/or that the durability of the gear wheel is locally increased by peening, and that the friction wear resistance of the teeth of the gear wheel is increased by application of carbide containing coatings.
3. Process according to Claim 2, thereby characterized, that it involves chill molding or chill casting.
4. Use of a crankshaft according to Claim 1 for a diesel powered vehicle.